WASTEWATER BENCH TEST PROCEDURE

EQUIPMENT AND SUPPLIES

1 150 ml beaker
1 scale (grams)
1 100 ml graduated cylinder
3 disposable droppers for:
    Sulfuric Acid/Ferrous Sulfate
    Hydrogen Peroxide ?
    Surfactant (Polymer)
1 magnetic mixer
1 magnetic stir bar
1 pH meter
1 small spatula
1 tare cup

SOLUTIONS

1 liter of raw waste water
100 ml of 25 grams per liter $FeSO_4 \cdot 7\ H_2O$
10 ml of 2 ml conc H_2SO_4 in 73 ml DI water
10 ml of 50 % Hydrogen Peroxide
10 grams of [redacted]hydrated Lime
10 ml of 6.667 mg per liter ~~Betz~~ CCI AP820 Polymer

SCALE UP FACTORS to 25,000 GALLONS

baseline
1 ml = 50 pound bag
1 drop = 0.333 gallons
1 drop = 7.5 gallons
48 mg = 100 pounds
1 drop = 0.315 grams

TEST PROCEDURE

1. Check quantities of solutions and either obtain or prepare any that are below the threshold amounts.
2. Put 100 ml of the raw waste water into the 150 ml beaker. Add the stir bar and put the beaker onto the magnetic mixer. Place pH probe into the solution and begin gentle mixing of the waste.
3. Add Sulfuric Acid solution slowly, counting the drops, to a sample pH of 5.
4. Add the Ferrous Sulfate solution, counting the drops (using the Sulfuric Acid dropper) until precipitation occurs. Add two or three more drops and stop when no more precipation occurs. If this is not for treating phenol, then skip down to step 6. If treating for phenol, then add 1 ml of the Ferrous Sulfate solution (20 drops) for each 100 ppm of phenol in the waste, regardless of the precipitation.
5. Add 4 drops of Hydrogen Peroxide for each 100 ppm of phenol in the waste. Keep the ? mixer running for 30 minutes, turn it off and then let the sample sit overnight.
6. Place several grams of [redacted]hydrated Lime onto a weight cup, measure and record. Add about 50 mg of the lime and wait about 5 minutes for the pH to stablize. Add more lime in the same manner until the target pH of 9.5 is reached. Measure the remaining lime and calculate the amount used.
7. Add the ~~Betz~~ CCI polymer dropwise, watching each drop until the flocculant forms. It will float or sink. Floating may be caused by excess Hydrogen Peroxide. or too much polymer
8. Use the Scale Up Factors to determine the amount for treatment. Prorate amounts for batches less than 25,000 gallons.

add Sodium Meta bisulfite To dissipate peroxide

CCI AP820